

(No Model.)

H. W. BILLINGTON.
GAS BURNER.

No. 593,453.

Patented Nov. 9, 1897.

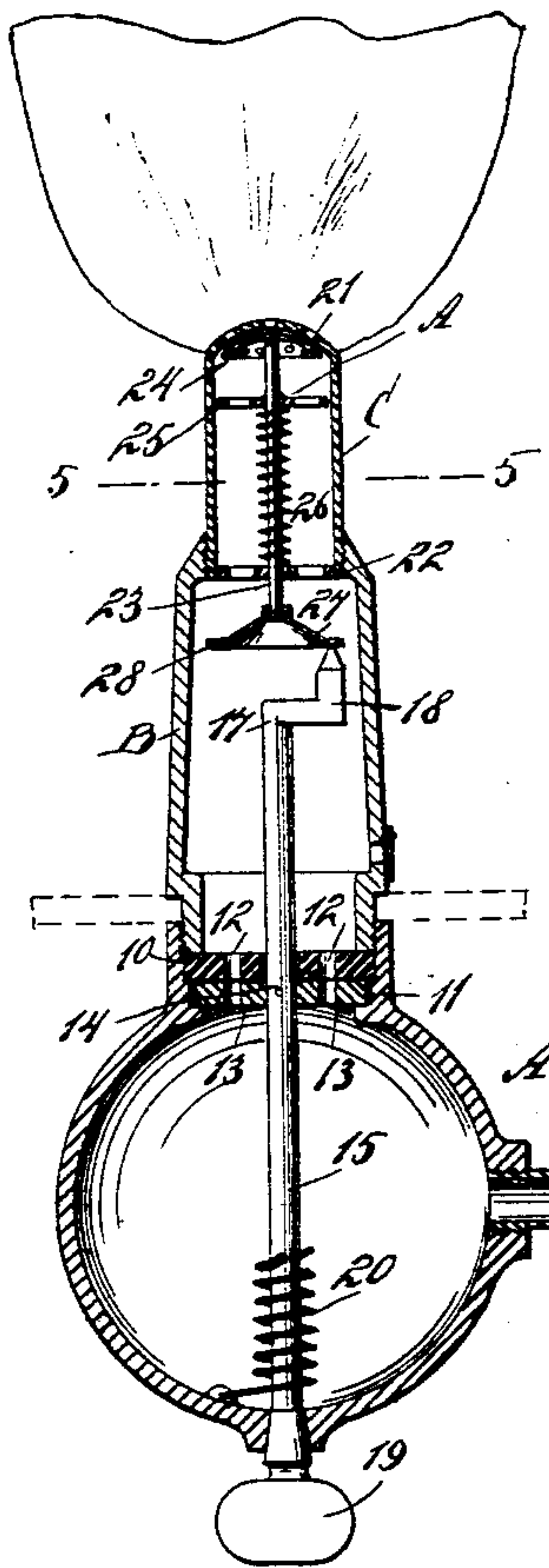


Fig. 1

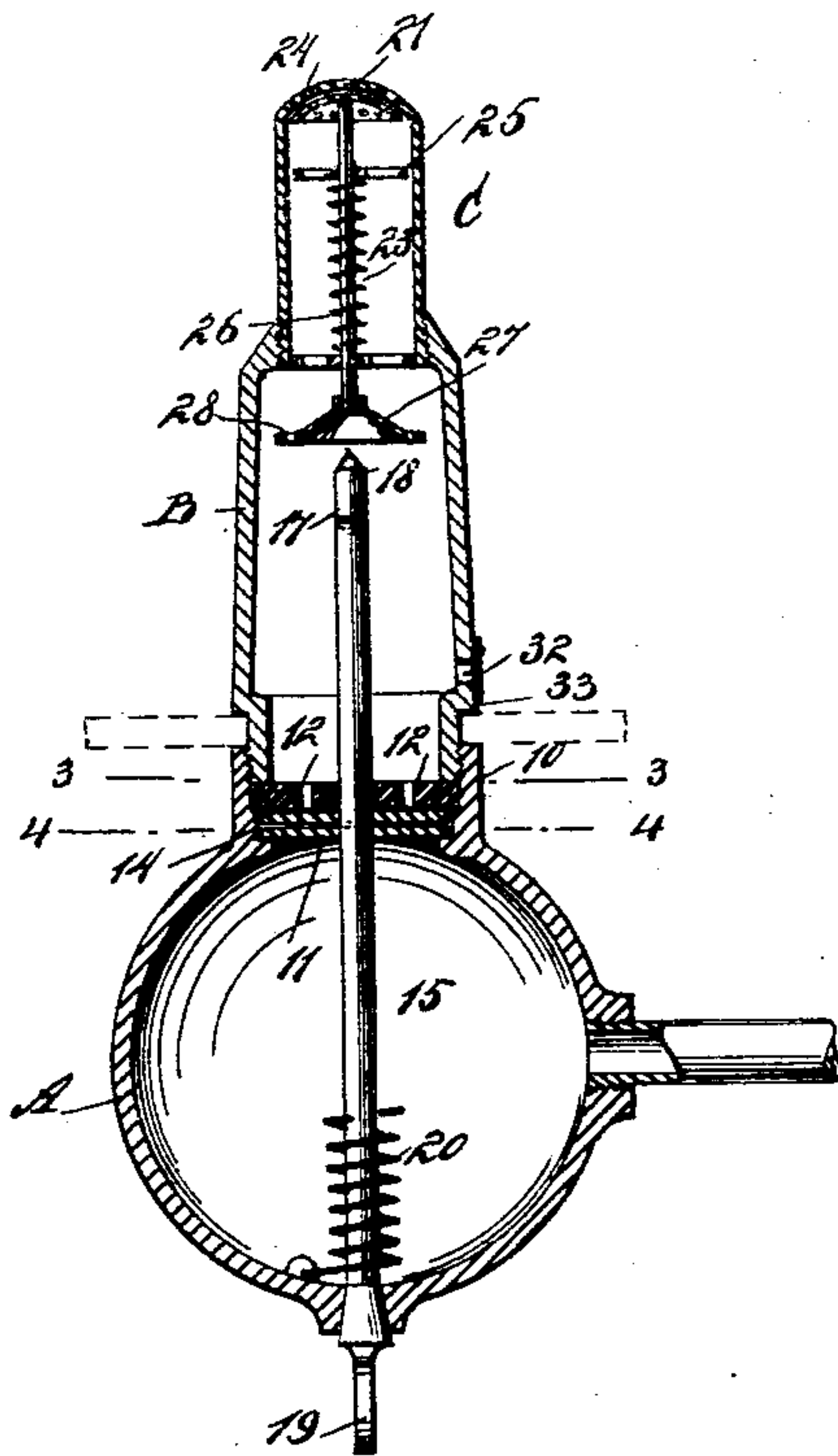


Fig. 2

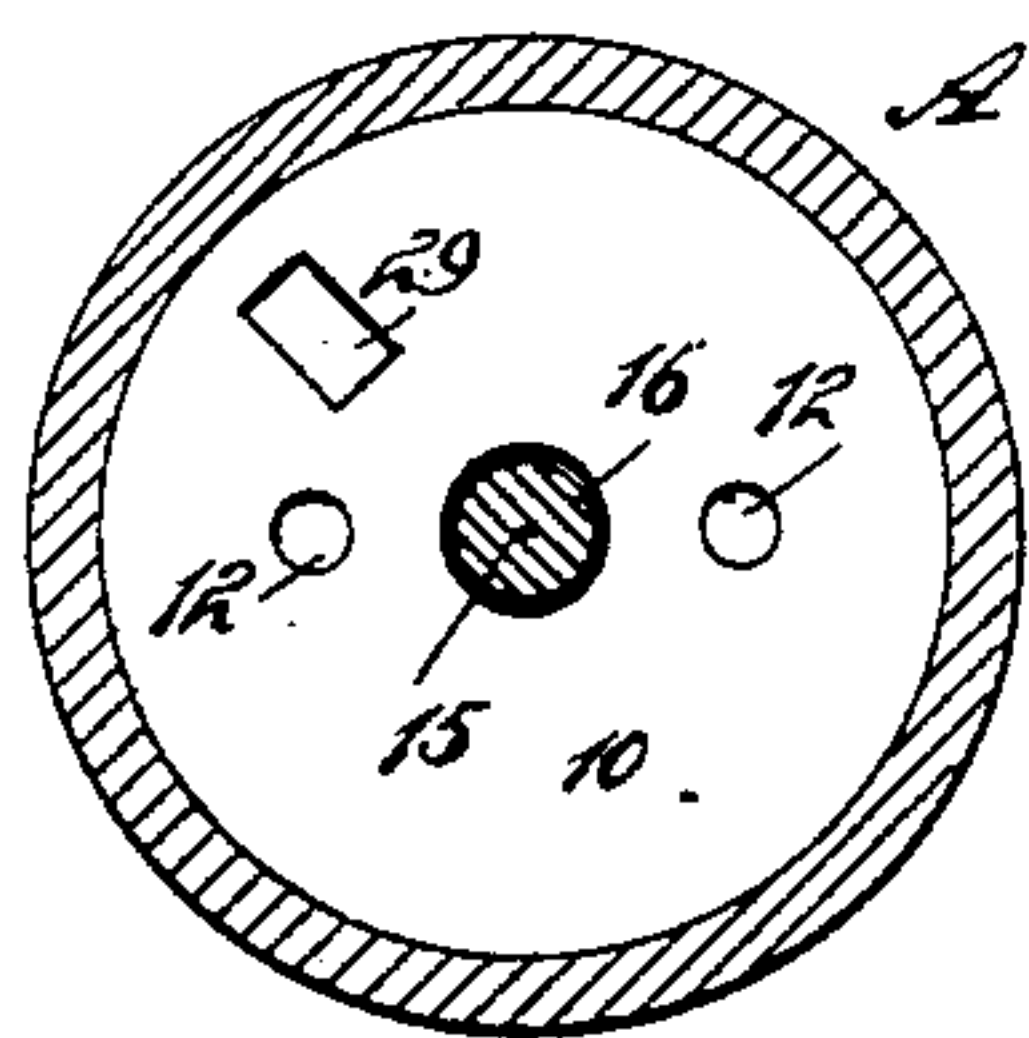


Fig. 3

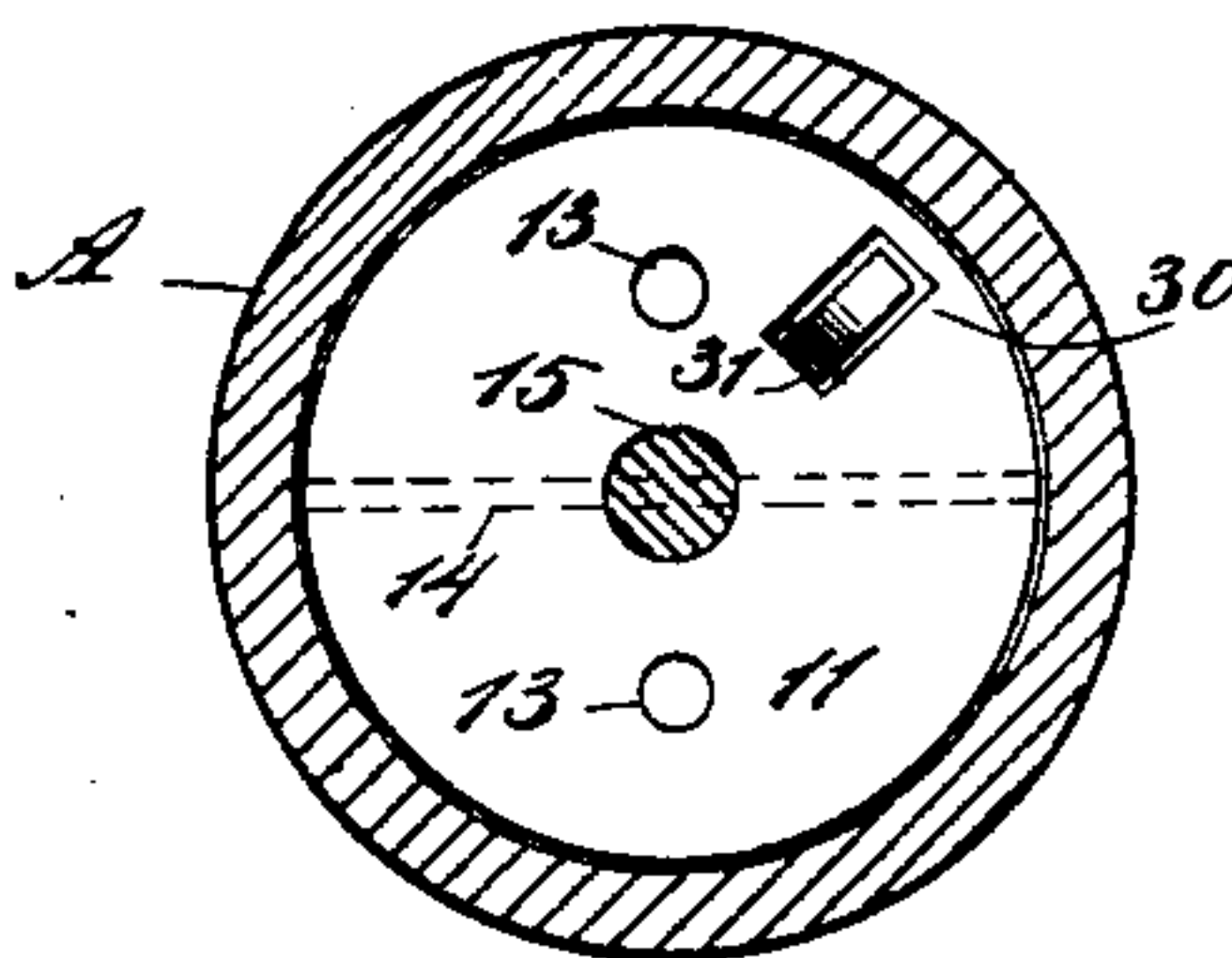


Fig. 4

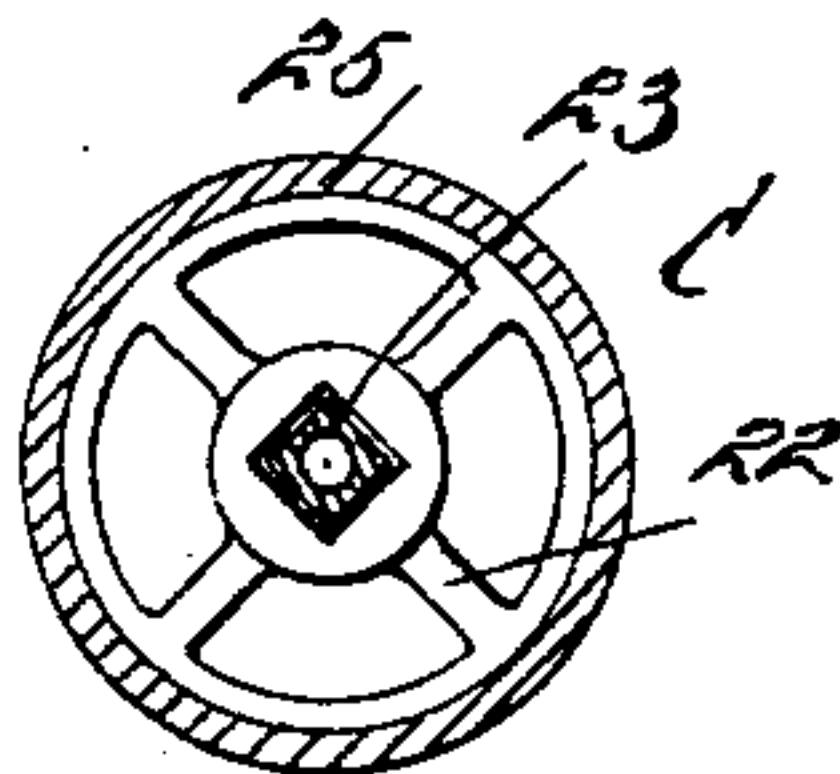


Fig. 5

WITNESSES:

John Bengtson
John A. Ker

INVENTOR

H. W. Billington

BY

Wm. H. Billington

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HORACE W. BILLINGTON, OF JERSEY CITY, NEW JERSEY.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 593,453, dated November 9, 1897.

Application filed June 9, 1897. Serial No. 639,982. (No model.)

To all whom it may concern:

Be it known that I, HORACE W. BILLINGTON, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Gas-Burners, of which the following is a full, clear, and exact description.

The object of the invention is to provide a gas-burner with an automatic gas-stop or cut-off so constructed and arranged that in the event the gas should be lighted and burning and by any accident the light should be blown out or extinguished the stop or cut-off will immediately act to stop the flow of gas, whereby no bad results will follow from such extinguishment.

Another object of the invention is to provide a gas-burner capable of accomplishing the above-named results which will be simple, durable, and economic, and, furthermore, to provide a means whereby when the flow of gas is cut off the parts effecting such an action may be locked, thus preventing a wrongful use of the gas, or when not needed for lighting purposes, provision being made for unlocking the cut-off when the gas is to be used for illuminating purposes.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the improved burner, illustrating the position of the parts when the gas is ignited at the burner-tip. Fig. 2 is a view similar to Fig. 1, illustrating the position of the parts when the supply of gas is cut off from the burner-tip. Fig. 3 is a horizontal section on the line 3 3 of Fig. 2. Fig. 4 is a horizontal section on the line 4 4 of Fig. 2, and Fig. 5 is a horizontal section on the line 5 5 of Fig. 1.

The burner consists of a body A, which is shown as of spherical shape and as hollow, together with a neck B, screwed or otherwise attached to the body, and a tip C, removably connected with the neck. The entire burner or any of its parts may be given any shape that fancy may dictate; but the contour illus-

trated is that which is preferred. Where the neck joins the body of the burner, a disk 10 is firmly secured, while a second and lower disk 11 is mounted to turn in the said body, the upper fixed disk being provided with openings 12 and the lower disk with corresponding openings 13, so that when the openings 12 and 13 in the two disks are brought into registry communication is established between the body and neck of the burner.

The revoluble disk 11 is secured by a pin 14 or the equivalent thereof to a rod or a key 15, which is mounted to turn in the body, and extends upward through a central opening 16 in the fixed disk 10. The upper end of this rod or key is provided with a crank-arm 17, the upwardly-extending member 18 whereof is brought to a fine point. The lower end of the rod or key 15, which is outside of the body, is provided with a knob 19, by means of which the key is turned, a suitable ground-joint being provided between the key and the bottom portion of the body of the burner, through which it passes. A spring 20 is attached to the rod or key, being coiled around the same, and is likewise secured to the inner surface of the body, as shown in Figs. 1 and 2. The tip C is provided with a number of openings 21 in its upper end, and at the lower portion of the tip a spider 22 is firmly secured, through which a copper rod 23 is passed, the rod being hollow and rectangular in cross-section. This copper rod extends upward to a point near the top of the tip, where it is connected with an apertured cap or crown 24, the cap or crown having its upper surface correspondingly shaped to the inner face of the upper end of the burner-tip.

A guide-spider 25 is attached to the copper rod 23 near its upper end, which serves to prevent the rod from having lateral movement, the rod being designed to have vertical movement only, and a spring 26 is coiled around the rod, bearing against the spider 25, secured to the rod, and the spider 22, attached to the tip. The end of the hollow copper rod 23, which extends below the fixed spider 22, is firmly connected with a disk 27, having, preferably, its under face at the center concaved, and at the peripheral straight portion of the disk a number of apertures 28 is produced. The disk is usually made from steel,

and the apertures in the disk are intended to receive the point of the crank-arm carried by the key 15.

If it be desired to form a lock between the cut-off disks 10 and 11, such a lock may be made by producing an opening 29 in the upper or fixed disk 10 and a corresponding opening 30 in the lower or revoluble disk, the latter opening 30 having attached to one of its walls a spring 31, which will normally extend beyond the upper face of this disk. The locking-openings 29 and 30 are so placed relative to one another that when the lower disk is turned in a manner to bring the gas-supply opening 13 out of registry with the similar opening 12 in the fixed disk the spring 31 of the lower cut-off disk will enter the opening 29 in the upper cut-off disk, thus effecting a locking connection between the two, and will prevent their being moved until the spring is released from the opening 29, and this may be accomplished by passing a rod of the necessary shape through an opening 32, made in the neck portion of the burner in a manner to depress the spring 31, the opening 32 being normally closed by a cover 33, fitting in a gas-tight manner on the said neck, as shown in Fig. 2.

In operation the key or rod 15 is turned so as to bring the openings 12 and 13 in the cut-off disks in registry. The gas will then find its way to the tip and may be ignited. As soon as the gas is ignited the heat will have such action on the copper rod 23 as to cause the expansion of the same, lengthening the rod, bringing the locking-disk 27 downward, so that the point of the crank-arm 18 of the key will enter one of the apertures therein. The key will thus be held open. In the event the flame should be accidentally extinguished the copper rod 23, upon becoming cool, will contract, and assisted by the spring 26 will almost instantly on the extinction of the flame shorten to such an extent as to free the key 15, whereupon the spring 20 of the key will act to carry the gas-supply openings in the cut-off disks out of registry, thereby preventing the gas being fed to the tip. The hollow body A acts as a reservoir for all impurities—such as water, dirt, &c.—which would tend to impede the flow of gas. By producing a series of openings 28 in the locking-disk 27, and especially in locating said apertures equidistant apart, the size of the flame will be entirely under the control of the manipulator of the key.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A gas-burner, a rod at the tip of the said

burner, capable of expansion and contraction, the said rod being within the burner and ranging longitudinally therein, a key regulating the supply of gas to the tip, and a locking device carried by said rod and arranged for engagement with the said key.

2. In a gas-burner, a key controlling the outlet of gas, the key having a part extending into and ranging longitudinally with the burner and an expansion device in advance of the said part and adapted to expand into engagement therewith.

3. In a gas-burner, a tension-controlled key, arranged to regulate the supply of gas to the tip of the burner, the said key being provided with a crank-arm at its upper or inner end, a thermostatic rod located in the tip of the burner, a spring assisting the movement of the thermostatic rod in one direction, and a locking-disk carried by the said thermostatic rod, having apertures arranged to receive the crank-arm of the said key, for the purpose described.

4. The combination, with a gas-burner provided with an apertured stationary disk, a rotating disk facing the stationary disk and correspondingly apertured, and a tension-controlled key attached to the rotating disk, of a thermostat located at the tip of the burner, terminating in a locking member adapted to receive a portion of the said key.

5. The combination, with a gas-burner, a stationary apertured disk located within the burner, a rotatable disk placed adjacent to the stationary disk, being correspondingly apertured, and a tension-controlled key attached to the rotatable disk, and provided with a pointed upper or inner end, of a thermostat located at the tip of the burner, guides for the same, and a locking device carried by the thermostat, having a series of openings arranged to receive the upper or inner end of the said key.

6. The combination, with a gas-burner provided with a stationary and a revoluble disk closely associated, and having corresponding apertures for the admission of gas from the body of the burner to the tip, and a tension-controlled key attached to the revoluble disk, one of said disks being provided with a spring-lock and the opposing disk with a recess to receive the said lock, of a thermostat located at the tip of the burner, and an apertured locking-disk carried by the thermostat, and arranged to receive the upper or inner end of said key.

HORACE W. BILLINGTON.

Witnesses:

JOHN S. O'CONNOR,
CHARLES F. MILLER.